Understanding Convolutional Neural Network

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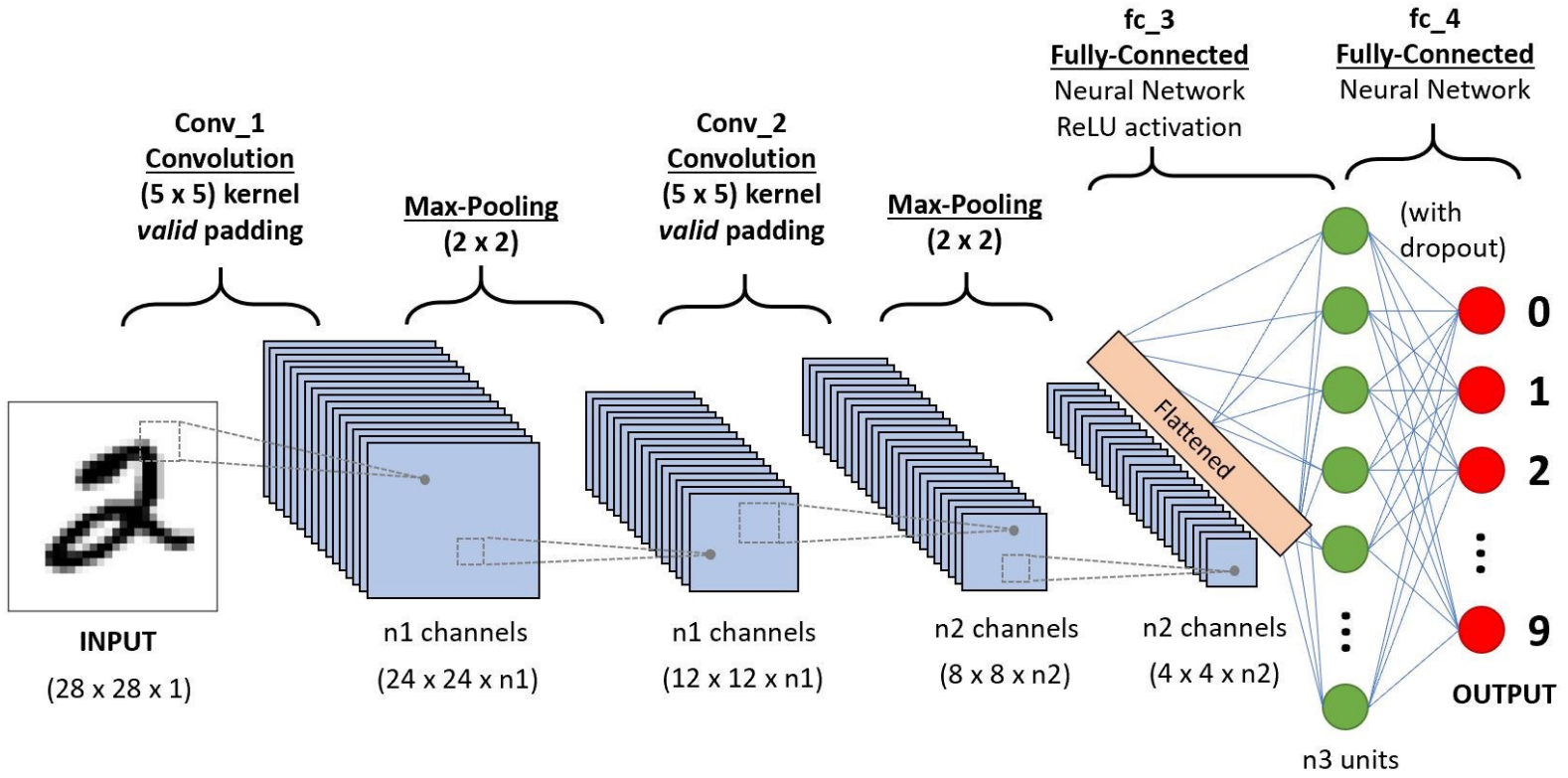
2022.02.12.Sat

What is Convolutional Neural Network?

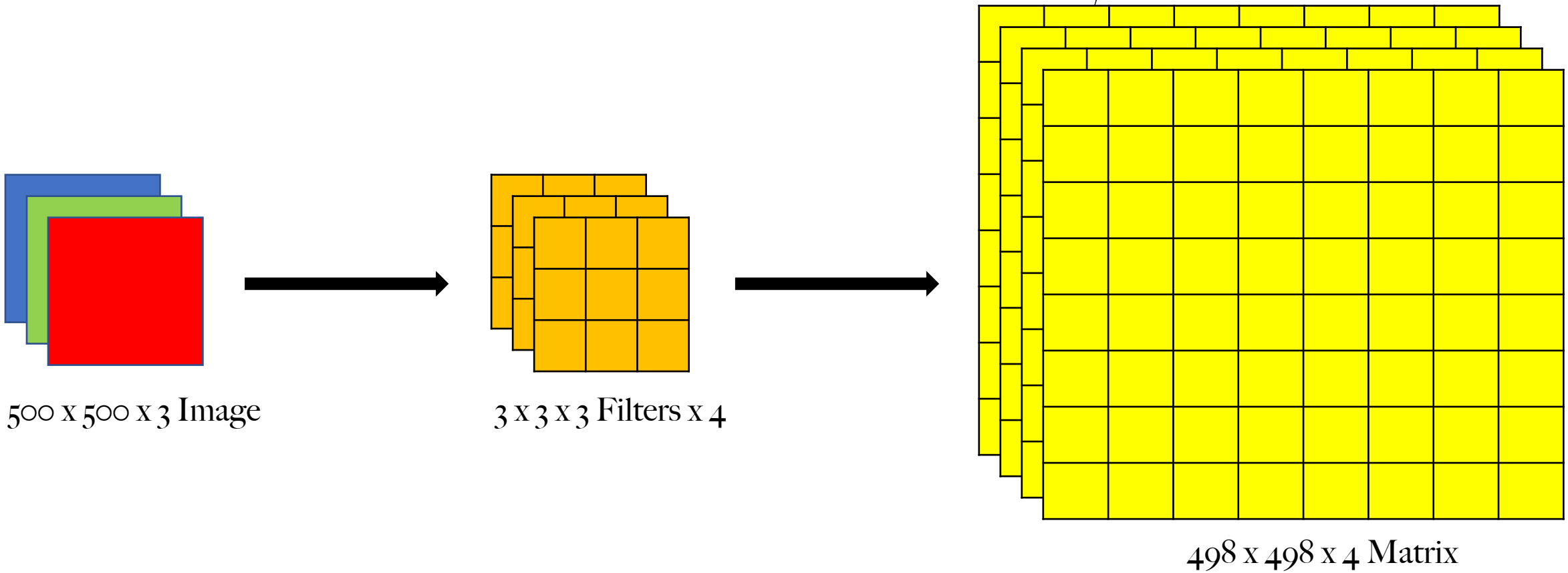
A Convolutional Neural Network(CNN) is a type of neural network that is most often applied to image processing problems.

- Convolutional layers
- Normalization layers
- Max Pooling
- Fully Connected



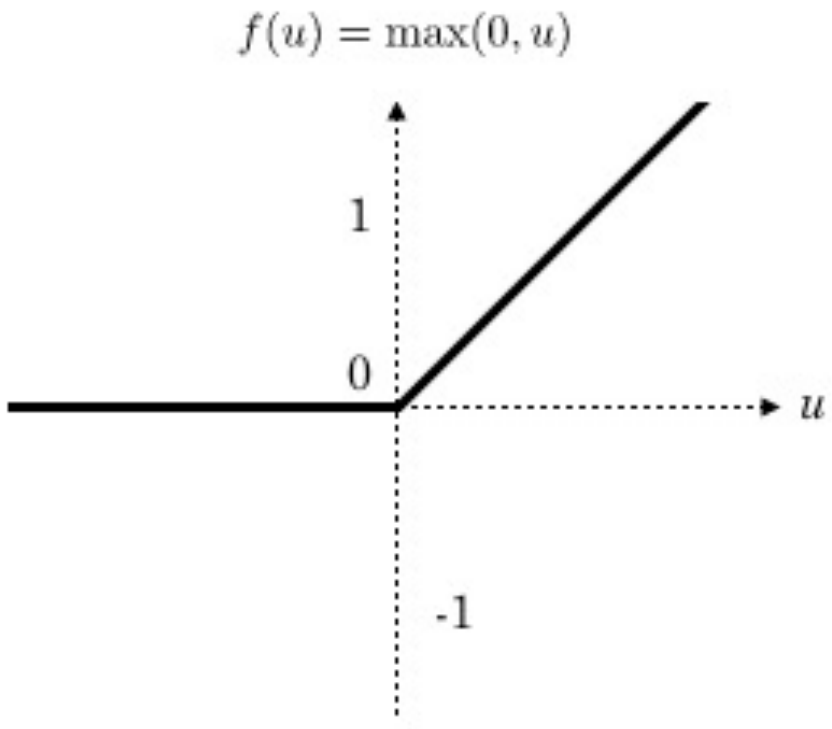
Convolutional layers

- Can be stacked multiple times.
- Dimensions of the filters must be selected carefully.



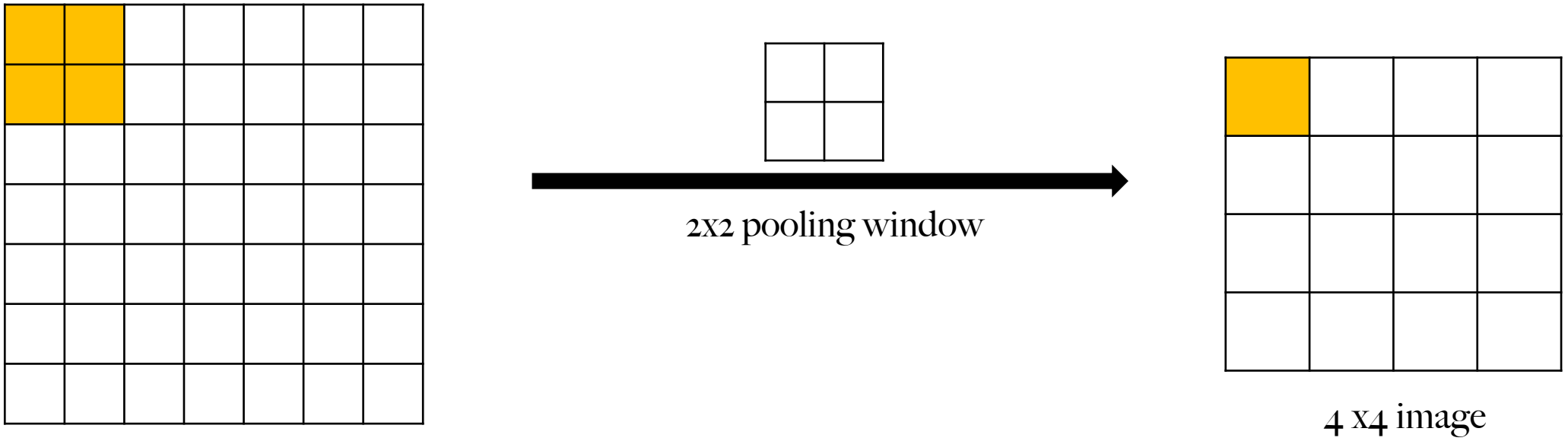
Normalization Layer

- ReLU – Rectified Linear Units
- If pixel value is negative, make it zero. Else keep the same value.
- Should be applied after every convolution layer.
- Applying ReLU doesn't change the dimension.

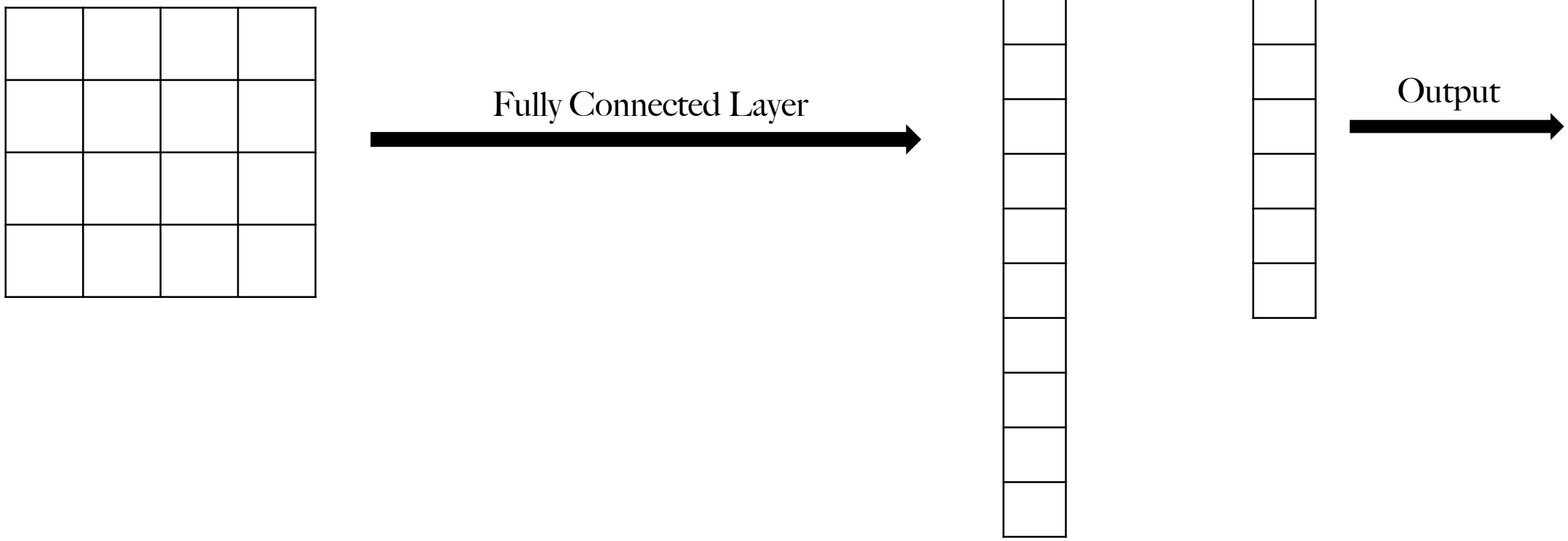


Pooling Layer

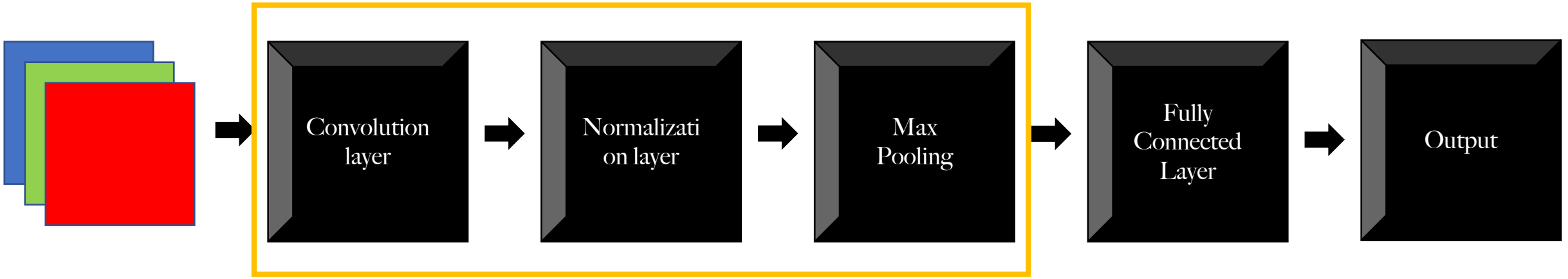
- Pooling reduces the number of pixels by selecting one value from the pooling window region based on criteria (max, min).
- Max pooling selects the maximum value in the region over which the pooling window is placed.



Fully Connected Layer



CNN Architecture



References

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- https://machinelearningmastery.com/convolutional-layers-for-deep-learning-neural-networks/
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- https://www.youtube.com/watch?v=YRhxdVk_sIs
- https://www.youtube.com/watch?v=iaSUYvmCekI&t=1138s

Thank you